SYSTEMS AND METHODS FOR LOW LOSS MONOLITHIC EXTREMELY HIGH FREQUENCY QUADRA-PHASE SHIFT KEY MODULATION

ABSTRACT

The present invention relates to systems and methods that reduce quadra-phase shift key (QPSK) modulator assembly size, cost and complexity *via* employing microwave monolithic integrated circuit (MMIC) technology. The systems and methods provide MMICs that include positive-intrinsic-negative (PIN) diodes as phase shifters (*e.g.*, binary, reflective, hybrid and switched filter) that mitigate the tight thermal control, complex drive electronics and calibration routines associated with conventional ferrite phase shifters. The systems and methods can be employed in connection with antenna auto-tracking system such as those associated with satellites, aircrafts and spacecrafts. Employing MMIC technology provides for chips that can be consistently fabricated for extremely high frequency (EHF) operation, and that can increase system performance *via* mitigating parasitic reactance.